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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,549	04/28/2001	Jiang Li	154634.2	3053

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EXAMINER

RAO, ANAND SHASHIKANT

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 06/10/2004

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/844,549

Applicant(s)

LI ET AL.

Examiner

Andy S. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 24, 25 and 35-59 is/are rejected.
- 7) ☒ Claim(s) 7, 9-23 and 26-34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

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DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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3. Claims 1-6, 8, 24-25, 35-59 are rejected under 35 U.S.C. 102(e) as being anticipated by Yogeshwar et al., (hereinafter referred to as "Yogeshwar").

Yogeshwar discloses a computer implemented process (Yogeshwar: column, lines 55-65; column 8, lines 1-8) for generating a bi-level video (Yogeshwar: column 39, lines 45-67), comprising using a computer to perform the following processing actions (Yogeshwar: column 98, lines 35-45): inputting digitized video (Yogeshwar: column 8, lines 50-60) comprising a sequence of video image frames (Yogeshwar: column 37, lines 45-61); converting the input video image frames into bi-level image frames (Yogeshwar: column 41, lines 53-63); and encoding the bi-level video frames (Yogeshwar: column 43, lines 20-37), as in claim 1.

Regarding claim 2, Yogeshwar discloses using a prescribed image compression technique and an associated decompression technique (Yogeshwar: column 8, lines 25-35), as in the claims.

Regarding claims 3-5, Yogeshwar discloses splitting the input video to separate the audio components from the image frames, prior to converting the image frames into bi-level image frames (Yogeshwar: column 11, lines 45-57); encoding the audio components using a low bit-rate audio compression technique (Yogeshwar: column 9, lines 15-20); and synchronizing and combining each audio component with the bi-level image frame that was derived from the input video image frame associated with the audio component (Yogeshwar: column 9, lines 30-45), as in the claims.

Regarding claims 6 and 8, Yogeshwar discloses ascertaining whether the input video image comprises pixels in terms of a color level (Yogeshwar: column 10, lines 50-65), and

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converting each input video frame to define each pixel in terms of one of a plurality of gray scale layers (Yogeshwar: column 56, lines 30-40), as in the claims.

Regarding claim 24, Yogeshwar discloses encoding the bi-level frames employing an adaptive context-based arithmetic coding technique (Yogeshwar: column 34, lines 55-67; column 35, lines 1-45), as in the claim.

Regarding claim 25, Yogeshwar discloses encoding the bi-level frame employing an adaptive context based coding technique (Yogeshwar: column 34, lines 55-67; column 35, lines 1-45) which utilizes a $\frac{1}{2}$ probability table (Yogeshwar: column 39, lines 50-67), as in the claim.

Regarding claims 35-36, Yogeshwar discloses transmitting the bi-level video over a medium (Yogeshwar: column 7, lines 25-45) requiring a prescribed transmission encoding scheme (Yogeshwar: column 16, lines 13-25) including the packetizing of the bi-level image frames (Yogeshwar: column 54, lines 20-50), as in the claims.

Yogeshwar discloses a system for generating a bi-level video (Yogeshwar: figure 1), comprising: a video camera (Yogeshwar: column 11, lines 45-51); a sending device capable (Yogeshwar: column 8, lines 28-45) of transmitting encoded bi-level image frames and audio data (Yogeshwar: column 9, lines 35-25) having a general purpose computing device (Yogeshwar: column 7, lines 55-65; column 8, lines 1-8), a computer program comprising a program modules executable by the computing device, wherein the computing device is directed by the program modules of the computer program to (Yogeshwar: column 8, lines 40-45): input digitized video using said video camera (Yogeshwar: column 8, lines 50-60), said video comprising a sequence of video image frames (Yogeshwar: column 37, lines 45-61) with an associated audio component (Yogeshwar: column 11, lines 50-53); split the input video

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(Yogeshwar: column 41, lines 53-63) to separate the audio component from the image frame (Yogeshwar: column 8, lines 5-10); convert the input video image frame into bi-level image frames (Yogeshwar: column 39, lines 45-67); encode the bi-level video frames (Yogeshwar: column 43, lines 20-37); encode the audio components (Yogeshwar: column 9, lines 15-25); and synchronize and combine each audio component with the bi-level image frame that was derived from the image frame associated with the audio component to produce a sequence of encoded bi-level video frames (Yogeshwar: column 9, lines 35-45), as in claim 37.

Regarding claim 38, Yogeshwar discloses inputting the digitized video into the computing device through an appropriate interface (Yogeshwar: column 11, lines 20-45), as in the claim.

Regarding claim 39, Yogeshwar discloses that the video camera is a non-digital video camera and the images captured by the camera are digitized prior to being input into the computing device (Yogeshwar: column 11, lines 48-54), as in the claim.

Regarding claims 40-41, Yogeshwar discloses a receiving device which is capable of receiving and decoding the bi-level video frames (Yogeshwar: column 11, lines 59-67; column 12, lines 1-10), as in the claims.

Yogeshwar discloses a computer readable medium (Yogeshwar: column 68, lines 1-15) having computer executable instructions (Yogeshwar: column 7, lines 55-65; column 8, lines 1-8) for generating a bi-level video (Yogeshwar: column 39, lines 45-67), comprising using a computer to perform the following processing actions (Yogeshwar: column 98, lines 35-45): inputting digitized video (Yogeshwar: column 8, lines 50-60) comprising a sequence of video image frames (Yogeshwar: column 37, lines 45-61); converting the input video image frames

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into bi-level image frames (Yogeshwar: column 41, lines 53-63); and compressing the bi-level video frames (Yogeshwar: column 43, lines 20-37) using an adaptive context-based arithmetic coding technique (Yogeshwar: column 34, lines 55-67; column 35, lines 1-45), as in claim 42.

Regarding claim 43, Yogeshwar discloses decompressing each video input image as specified (Yogeshwar: column 8, lines 65-67; column 9, lines 1-15), as in the claim.

Yogeshwar discloses a computer implemented process (Yogeshwar: column 7, lines 55-65; column 8, lines 1-8) for playing a bi-level video (Yogeshwar: column 39, lines 45-67), comprising using a computer to perform the following processing actions (Yogeshwar: column 8, lines 35-45): receiving a bi-level video (Yogeshwar: column 8, lines 50-60) in the form of a sequence of frames (Yogeshwar: column 37, lines 45-61), each of which comprises a bi-level image (Yogeshwar: column 39, lines 45-67; column 40, lines 1-14); decoding the bi-level image frame (Yogeshwar: column 7, lines 65-67; column 8, lines 1-10); rendering each decoded bi-level image frame for display by assigning (Yogeshwar: column 35, lines 20-25) a first of two prescribed colors to pixels exhibiting a first of binary values and as second of said prescribed colors to all remaining pixels of the image frame (Yogeshwar: column 56, lines 35-40) converting the input video image frames into bi-level image frames (Yogeshwar: column 41, lines 53-63); and compressing the bi-level video frames (Yogeshwar: column 43, lines 20-37) using an adaptive context based arithmetic coding technique (Yogeshwar: column 35-65), as in claim 44.

Regarding claims 45-47, Yogeshwar discloses that the second color is darker than the first color (Yogeshwar: column 56, lines 35-40), as in the claims.

Regarding claim 48, Yogeshwar discloses transmitting the bi-level video over a medium (Yogeshwar: column 7, lines 25-45) requiring a prescribed transmission encoding scheme (Yogeshwar: column 16, lines 13-25) including the packetizing of the bi-level image frames (Yogeshwar: column 54, lines 20-50), as in the claim.

Regarding claims 49-50, Yogeshwar discloses encoding the bi-level frame employing an adaptive context based arithmetic coding technique (Yogeshwar: column 34, lines 55-67; column 35, lines 1-45), as in the claims.

Regarding claims 51-52, Yogeshwar discloses designating the first bi-level image frame received and frames in the frame sequence occurring at a known prescribed interval (Yogeshwar: column 33, lines 30-40) as I frames (Yogeshwar: column 37, lines 45-55), and designating the image frames in the frame sequence falling between a pair of consecutive I frames as P frames (Yogeshwar: column 48, lines 1-33), as in the claims.

Regarding claims 53-54, Yogeshwar discloses splitting the bi-level video frame into its constituent audio and bi-level image frame, prior to processing the image frame (Yogeshwar: column 11, lines 45-57); play the audio data associated with each bi-level video frame concurrently with displaying the bi-level image frame associated with that bi-level video frame (Yogeshwar: column 9, lines 30-45), as in the claims.

Yogeshwar discloses a system (Yogeshwar: column 7, lines 55-65; column 8, lines 1-8) for playing a bi-level video (Yogeshwar: column 39, lines 45-67), comprising: a receiving device having a displaying bi-level images and playing audio (Yogeshwar: column 12, lines 3-7) and having general purpose computing device (Yogeshwar: column 8, lines 35-45); and a computer program executable by the computing device, wherein the computing device is directed by the

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program modules of the computer program to (Yogeshwar: column 67, lines 45-67; column 68, lines 1-20): receive a bi-level video (Yogeshwar: column 8, lines 50-60) in the form of a sequence of frames (Yogeshwar: column 37, lines 45-61), each of which comprises a bi-level image each bi-level video frame (Yogeshwar: column 39, lines 45-67; column 40, lines 1-14) and audio data (Yogeshwar: column 9, lines 15-20); split the bi-level video frame into its bi-level image frame and audio component (Yogeshwar: column 9, lines 30-45); decode each bi-level image frame (Yogeshwar: column 9, lines 1-10); rendering each decoded bi-level image frame for display by assigning (Yogeshwar: column 35, lines 20-25) a first of two prescribed colors to pixels exhibiting a first of binary values and as second of said prescribed colors to all remaining pixels of the image frame (Yogeshwar: column 56, lines 35-40) converting the input video image frames into bi-level image frames (Yogeshwar: column 41, lines 53-63); display each rendered bi-level image frame using the assigned colors and in the sequence in which it was received (Yogeshwar: column 12, lines 1-10); and play the audio data associated with each bi-level concurrently with displaying the bi-level image frame associated with that bi-level video frame (Yogeshwar: column 9, lines 34-45), as in claim 55.

Regarding claim 56, Yogeshwar discloses that the audio component has been compressed using an audio compression technique (Yogeshwar: column 9, lines 15-20), as in the claim.

Regarding claims 57-58, Yogeshwar discloses that the device is capable of sending audio data (Yogeshwar: column 12, lines 55-67), as in the claims.

Yogeshwar discloses a computer readable medium having computer executable instructions for displaying a bi-level video (Yogeshwar: column 67, lines 45-67; column 68, lines 1-20), said computer executable instructions comprising: receiving a bi-level video

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(Yogeshwar: column 8, lines 50-60) in the form of a sequence of frames (Yogeshwar: column 37, lines 45-61), each of which comprises a bi-level image each bi-level video frame (Yogeshwar: column 39, lines 45-67; column 40, lines 1-14) encoded using an adaptive context-based arithmetic coding technique (Yogeshwar: column 35, lines 45-65); split the bi-level video frame into its bi-level image frame and audio component (Yogeshwar: column 9, lines 30-45); decode each bi-level image frame using an adaptive context based arithmetic decoding technique (Yogeshwar: column 9, lines 1-10); rendering each decoded bi-level image frame for display by assigning (Yogeshwar: column 35, lines 20-25) a first of two prescribed colors to pixels exhibiting a first of binary values and as second of said prescribed colors to all remaining pixels of the image frame (Yogeshwar: column 56, lines 35-40); displaying each rendered bi-level image frame using the assigned colors and in the sequence in which it was received (Yogeshwar: column 12, lines 1-10), as in claim 59.

Allowable Subject Matter

4. Claims 7, and 9-23, 26-34 are objected to as being dependent upon a rejected base claim, but would be allowable if claim 7 is rewritten in independent form including all of the limitations of the base claim 1 and intervening claim 6.

Dependent claim 7 recites "associating an indicator..." which is a feature that is not anticipated nor obvious over the art of record. Accordingly, if claim 7 is amended as indicated above, and rejected claims 1-6, 8, 24-25, 35-59 are canceled, the application would be placed in a condition for allowance.

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Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pearlman discloses an embedded and low complexity hierarchical image coder.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (703)-305-4813. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris S. Kelley can be reached on (703)-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andy S. Rao
Primary Examiner
Art Unit 2613

ANDY RAO
PRIMARY EXAMINER

asr
June 8, 2004